



TECHNICAL BULLETIN

August 3, 2021
Supersedes December 4, 2020

Agency Approved Active Ingredients for Growers

The intent of this technical bulletin is to update the list of Agency approved active ingredients that can be used in the cultivation of marijuana.

This document was updated to include the following:

- *Pseudomonas chlororaphis* strain AFS009 (Howler fungicide*,^F)

Rule 6(3) in the Marihuana Operations Rule Set - R 420.206(3)

The agency shall publish a list of approved chemical residue active ingredients for cultivators to use in the cultivation and production of marihuana plants and marihuana products to be sold or transferred in accordance with the acts or these rules.

Use of banned chemicals will be referred to the Marijuana Regulatory Agency (MRA) Field Operations and/or Operations Support Section for investigation and inspection. This may result in sanctions, including, but not limited to, license denial; license limitation or restriction; fines; revocation, suspension, or nonrenewal of a license; administrative holds; and/or orders to cease operations. The MRA may issue future lists that supersede the information contained in this bulletin.

Please note: The Natural Resources and Environmental Protection Act, 1994 PA 451, Part 83 et seq. and Michigan Department of Agriculture & Rural Development (MDARD) regulations apply to all pesticide use; marijuana is no exception. Specifically:

Any pesticide or pest control companies contracted or used by licensed marijuana cultivators to apply restricted use pesticides, shall obtain a commercial applicator license through MDARD.

- Applicators shall fully adhere to the product label agriculture use requirements, this includes but is not limited to application rates, re-entry intervals (REI), pre-harvest intervals (PHI) and use of personal protection equipment when using pesticide products in marijuana cultivation.

For questions related to pesticide application and labeling, please contact MDARD at 517-284-5655.

This technical bulletin does not constitute legal advice and is subject to change. It is intended to provide a technical clarification only to the Marijuana Regulatory Agency's Administrative Rules. Licensees are encouraged to seek legal counsel to ensure their operations comply with the Administrative Rules.

More information on the MRA can be found at the agency's [website](#)



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The following approved chemical active ingredients are organized by the intended target:

- ^B **Bactericide**
- ^F **Fungicide**
- ^H **Herbicide**
- ^I **Insecticide**
- ^M **Miticide**
- ^R **Rodenticide**

Ammonium salts

Ammonium nonanoate (BioSafe Weed and Grass Killer^{*, H})

Azadirachtin (AzaMax^{*, I, M})

Bacillus amyloliquefaciens strain D747

(Ethos XB^{*, F, I})

Bacillus pumilus strain GHA 180 (Sonata^{*, F})

Bacillus subtilis GB03 (Champion Max^{*, F, B})

Bacillus subtilis QST strain 713 (Cease^{*, F})

Bacillus thuringiensis (BT Now^{*, I})

Bacillus thuringiensis subsp. *kurstaki* (DiPel ES^{*, I})

Bacillus thuringiensis subsp. *israelensis* (Teknar CG^{*, I})

Beauveria bassiana (Mycotrol WPO^{*, I})

Beauveria bassiana strain ANT-03

(BioCeres WP^{*, I})

Beauveria bassiana strain GHA (BotaniGard 22WP^{*, I})

Burkholderia spp. strain A396 (Venerate XC^{*})

Capric acid (Homeplate^{*, H})

Caprylic acid (Homeplate^{*, H})

Capsaicin (Miller Hot Sauce Animal Repellent^{*, I, R})

Capsicum oleoresin

Castor oil

Chromobacterium sub strain PRAA4-1 cells (Grandevo WDG^{*, I, M})

Chromobacterium substugae (Grandevo WDG^{*, I, M})

Cinnamon and cinnamon oil

Citric acid

Cloves and clove oil (Ex-icute^{*, I})

Coniothyrium minitans (as a soil amendment, ConTans WG^{*, F})

Copper hydroxide (Badge SC^{*, B, F})

Copper octanoate (Cueva^{*, F})

Copper oxychloride (Badge SC^{*, B, F})

Corn oil

Cottonseed oil

Ethanol

Eugenol

Farnesol (Biomite^{*, I})

Fenhexamid (Elevate 50 WDG^{*, F})

Garlic and garlic oil (Captiva^{*, I})

Geraniol (Biomite^{*, I})

Gliocladium catenulatum strain J1446 (LALSTOP G46 WG^{*, F})

Gliocladium virens (SoilGard 12G^{*, F})

Heterohaditis bacteriophora (NemaSeek-Hb Beneficial Nematodes^{*, I})

Heterohaditis indica (NemaSeek-Hi Beneficial Nematodes^{*, I})

Horticultural oils (petroleum oil)

Hydrogen Peroxide (OxiPhos^{*, B, F})

Insecticidal soaps (potassium salts of fatty acids)

Iodine (10% Povidone - Iodine)

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Isopropyl Alcohol	Sodium hypochlorite
<i>Isaria fumosorosea</i> (PFR-97 20% WDG*, I)	Sodium lauryl sulfate (Green Cleaner*)
Kaolin (Surround CF*, I, M)	Soybean oil (Mantis EC*, I)
Linseed oil	<i>Stienernema carpcapsae</i> (NemaAttack-Sc
Milk	Beneficial Nematodes*, I)
Mineral Oil (Suff-oil X*)	<i>Stienernema feltiae</i> (NemaAttack-Sf
Mono and di-potassium salts of	Beneficial Nematodes*, I)
phosphorous acid (Appeal*, F)	<i>Stiennema kraussei</i> (NemaAttack-Sk
Neem oil (Trilogy*, F, I, M)	Beneficial Nematodes*, I)
Nerolidol (Biomite*, I)	<i>Stiennema riobrave</i> (NemaAttack-Sr
<i>Pseudomonas chlororaphis</i> strain AFS009	Beneficial Nematodes*, I)
(Howler fungicide*, F)	<i>Streptomyces lydicus</i> wyec 108 (Actinovate
Paraffinic oil (mineral oil, 415 Superior	AG*, F)
Spray Oil*, F, I, M)	Sucrose octanoate
Peppermint and peppermint oil (Mantis EC*,	Sucrose octanoate esters
I)	Sulfur (Cosavet DF*, F, I, M)
Peroxyacetic acid	Thyme and thyme oil (Proverde*, I)
Piperonyl butoxide	<i>Trichoderma asperellum</i> strain ICC 012
Potassium bicarbonate (Kaligreen*, F)	(Tenet WP*, F)
Potassium silicate (Sil-Matrix LC*, F, I, M)	<i>Trichoderma gamsii</i> strain ICC 080 (Tenet
Potassium sorbate	WP*, F)
<i>Reynoutria sachalinensis</i> (Regalia*)	<i>Trichoderma harzianum</i> Rifai strain T-22
Rosemary and Rosemary oil (Mantis EC*, I)	(RootShield*, F)
Sesame and sesame oil (Ex-icute*, I)	<i>Trichoderma harzianum</i> Rifai strain KRL-
Sodium dicarbonate	AG2 (Trianum-G*, F)
Sodium benzonate	White pepper
Sodium carbonate peroxyhydrate	Yeast (not active - often, dead yeast is
Sodium citrate	added as an ingredient in commonly used
Sodium chloride	name brands)

***Mention of trade names or commercial products in this bulletin is solely for the purpose of providing information and does not imply recommendations or endorsement by the MRA. There may be additional products which include this active ingredient, brand name provided as an example.**

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